

Notice of Allowability

Application No.

10/608,544

Examiner

Dominic E. Rego

Applicant(s)

PARAMESH ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 10/24/06.
2. ☒ The allowed claim(s) is/are 1-3,11-13,17,18,20 and 21.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/24/2006 has been entered.

Allowable Subject Matter

2. Claims 1-3,11-13,17,18,20, and 21 are allowed.

The following is an examiner's statement of reasons for allowance:

Regarding claims 1,11, and 17, the prior art of record, specifically Aoyama (*US Patent Application Publication #20020158800*) teaches a communication system comprising:

a first communication device to transmit plurality of signals over plurality of channels; a second communication device to receive the plurality of signals by plurality of antennas and to combine the plurality of signals by providing antenna weighted values to the signals (*Paragraph 0010: Aoyama teaches an object of the present invention is to provide an array antenna radio communication apparatus and an array antenna radio communication method, capable of improving a reception quality by setting values of the reception weights for a plurality of signals transmitted from the same direction on a plurality of channels to the same value*);

Hiramatsu (*US Patent #5,841,400*) teaches a radio frequency (RF) section which includes a first antenna weighted value generator to output a pair of first real and first imaginary antenna weighted radio frequency (RF) signal components, a second antenna weighted value generator to output a pair of second real and second imaginary antenna weighted radio frequency (RF) signal components, a first adder to combine the first and second real radio frequency (RF) signal components, and a second adder to combine the first and second imaginary radio frequency (RF) signal components (*Col 9, line 45-56; Col 13, line 44-51: Hiramatsu teaches the first to M-1th multipliers 215.sub.1 to 215.sub.M-1 output first to M-1th real part signals M.sub.R1 to $M_{R(M-1)}$ and first to M-1th imaginary part signals M.sub.I1 to $M_{I(M-1)}$ of multiplied results M1 to M(M-1) in the first to Mth multipliers 2151 to 215.sub.M-1, respectively. (19) The first adder 217.sub.1 is adapted to output a real part added signal M.sub.R by adding the first to Mth real part signals M.sub.R1 to M.sub.R (M-1) outputted from the first to M-1th multipliers 215.sub.1 to 215.sub.M-1. The second adder 217.sub.2 is adapted to output an imaginary part added signal M.sub.I by adding the first to M-1th imaginary part signals M.sub.I1 to M.sub.I (M-1) outputted from the first to M-1th multipliers 215.sub.I to 215.sub.M-1*);

However, none of the prior art cited alone or in combination provides the motivation to teach a radio frequency (RF) to intermediate frequency (IF) quadrature downconverter to receive a combined antenna weighted radio frequency (RF) real signal from said first adder and a combined antenna weighted radio frequency (RF)

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imaginary signal from said second adder, and to output an in-phase portion and a quadrature portion of an intermediate frequency (IF) signal; and

an intermediate frequency (IF) to baseband downconverter operably coupled to said radio frequency (RF) to intermediate frequency (IF) quadrature downconverter, to downconvert said in-phase portion and said quadrature portion of said intermediate frequency signal to an in-phase portion and a quadrature portion of a baseband signal.

Dependent claims 2,3,12,13,18,20, and 21 are allowed for the same reason.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dominic E. Rego whose telephone number is 571-272-8132. The examiner can normally be reached on Monday-Friday, 8:30 am-5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on 571-272-7882. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Dominic E. Rego

 11/09/06

QUOCHIEN B. VUONG
PRIMARY EXAMINER